Avaya Solution & Interoperability Test Lab

Application Notes for Multi-Tech FaxFinder® IP with Avaya IP Office – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate the Multi-Tech FaxFinder® IP with Avaya IP Office. The Multi-Tech FaxFinder IP is a fax server that uses the SIP trunk interface with T.38 fax from Avaya IP Office to send and receive fax.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

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1. Introduction

These Application Notes describe the configuration steps required to integrate the Multi-Tech FaxFinder® IP with Avaya IP Office. The Multi-Tech FaxFinder IP is a fax server that uses the SIP trunk interface with T.38 fax from Avaya IP Office to send and receive fax. FaxFinder IP Model FF240-IP-8 was used in the compliance test.

For each user on Avaya IP Office that desires to use fax, a fax extension is assigned and configured on Multi-Tech FaxFinder IP. Incoming fax calls to these fax extensions are routed to Multi-Tech FaxFinder IP via an available SIP channel. The received incoming fax can be sent to the fax recipient's email address, printed automatically, or stored in a shared folder, depending on the provisioning in Multi-Tech FaxFinder IP. In the compliance testing, the shared folder method was used to store incoming faxes.

Outgoing faxes can be sent from the Multi-Tech FaxFinder client application, from any PC application that supports print, from any email client using the T.37 interface, or from the Multi-Tech FaxFinder web interface. In the compliance testing, the web interface method was used to send outgoing faxes.

2. General Test Approach and Test Results

The feature test cases were performed manually. Internal and external fax calls to and from Multi-Tech FaxFinder IP were made. The fax calls were sent and received using the Multi-Tech FaxFinder IP web interface and the analog fax destination at the PSTN.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet cable to Multi-Tech FaxFinder IP, and by rebooting the Multi-Tech FaxFinder IP server.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying the following with Multi-Tech FaxFinder IP:

- Proper handling of faxes via the SIP trunk including send/receive, internal fax, external fax over ISDN (PRI), simultaneous bi-directional faxes, and miscellaneous failure scenarios.
- Proper handling of faxes with different pages, complexity, format and data rates.
- No adverse impact on any internal or external calls during faxes.

The serviceability testing focused on verifying the ability of Multi-Tech FaxFinder IP to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to Multi-Tech FaxFinder IP.

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2.2. Test Results

All test cases passed.

2.3. Support

Technical support on Multi-Tech FaxFinder IP can be obtained through the following:

- **Phone:** (763) 717-5863
- **Web:** https://support.multitech.com

3. Reference Configuration

In the compliance testing, the Avaya IP Office users have telephone extensions in the range of 600xx, and fax extensions in the range of 610xx as shown in **Figure 1** below.

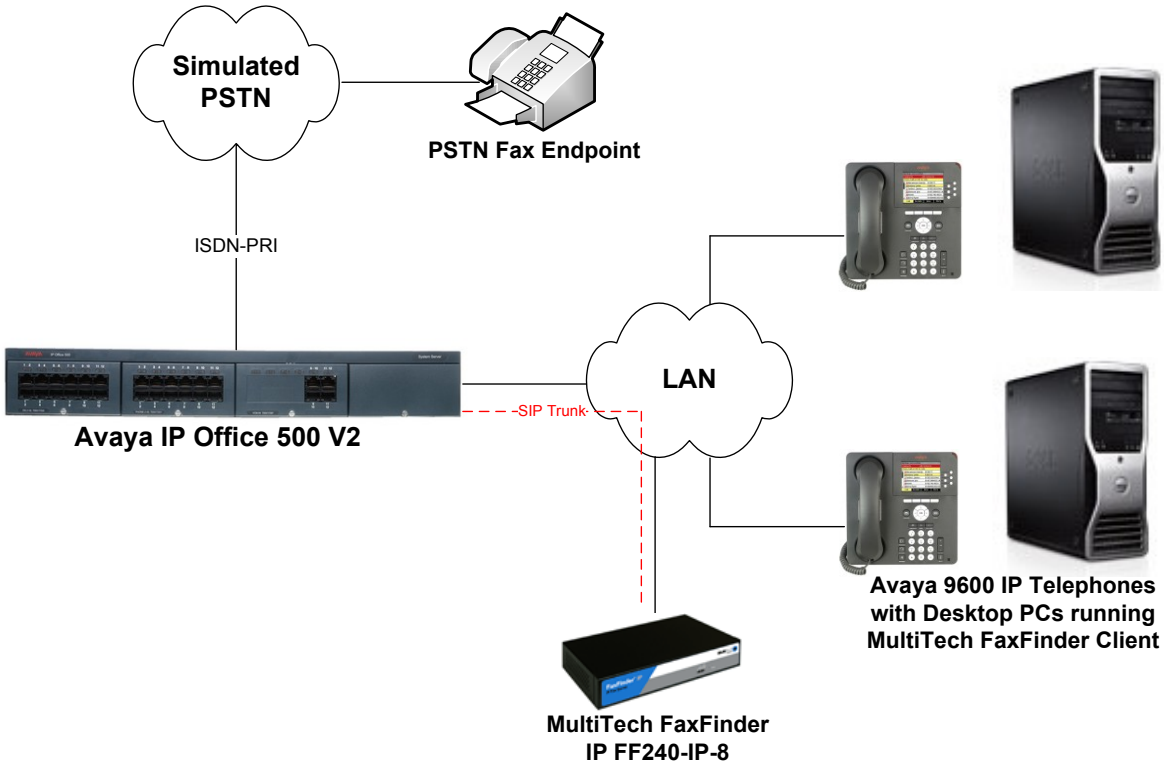

Figure 1: Multi-Tech FaxFinder IP with Avaya IP Office using SIP

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4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya IP Office 500 V2	8.0 (13)
Avaya 9600 Series IP Telephones (H.323)	3.1 SP 2
Multi-Tech FaxFinder IP FF240-IP-8	1.0.22

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5. Configure Avaya IP Office

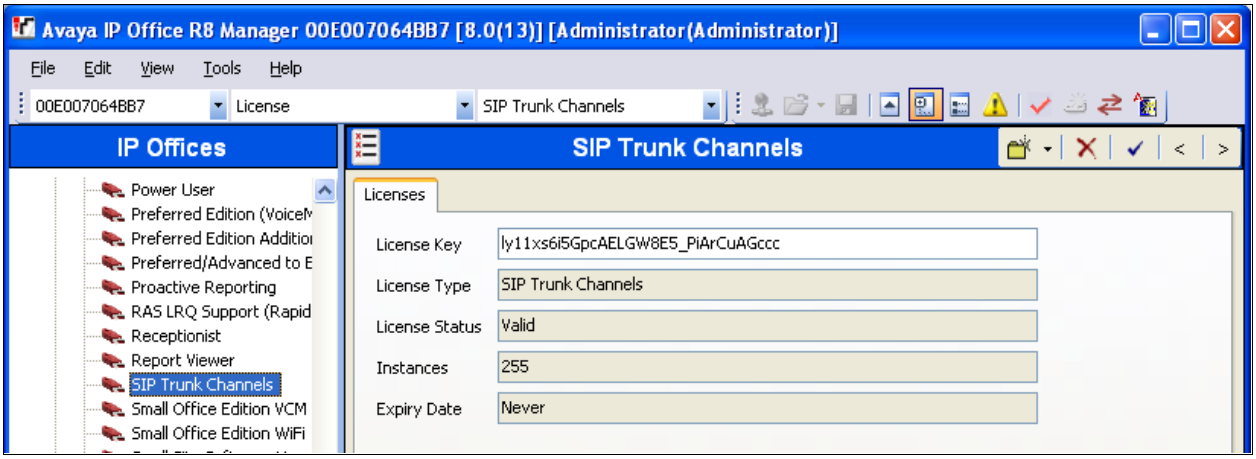
This section provides the procedures for configuring Avaya IP Office. The procedures include the following areas:

- Verify IP Office license
- Obtain LAN IP address
- Enable SIP trunks
- Administer SIP line
- Administer incoming call route
- Administer short code

5.1. Verify IP Office License

From a PC running the Avaya IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system, and log in with the appropriate credentials.

The **Avaya IP Office R8 Manager** screen is displayed. From the configuration tree in the left pane, select **License → SIP Trunk Channels** to display the **SIP Trunk Channels** screen in the right pane. Verify that the **Licence Status** is "Valid", and that the **Instances** value is sufficient for the desired maximum number of simultaneous faxes.



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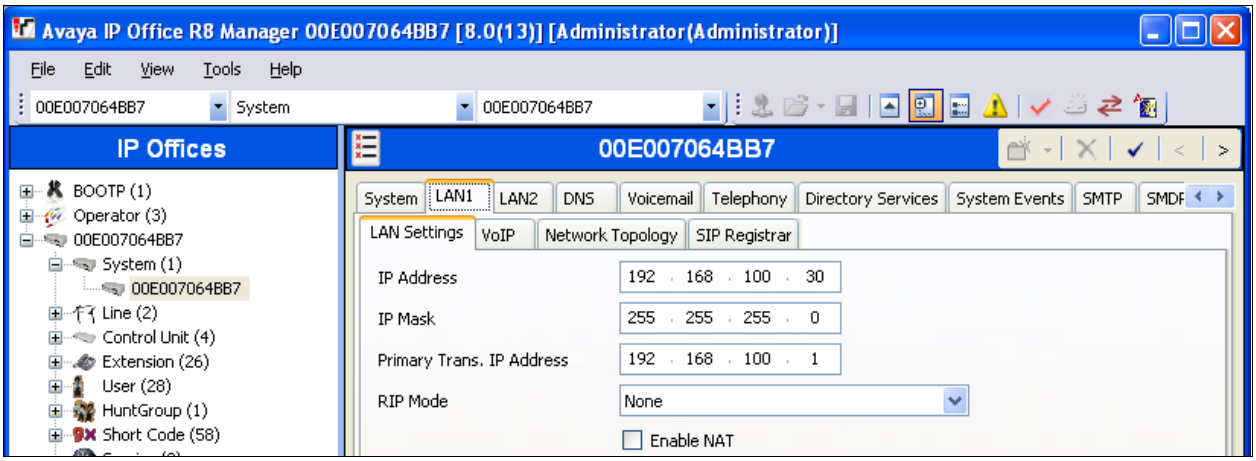
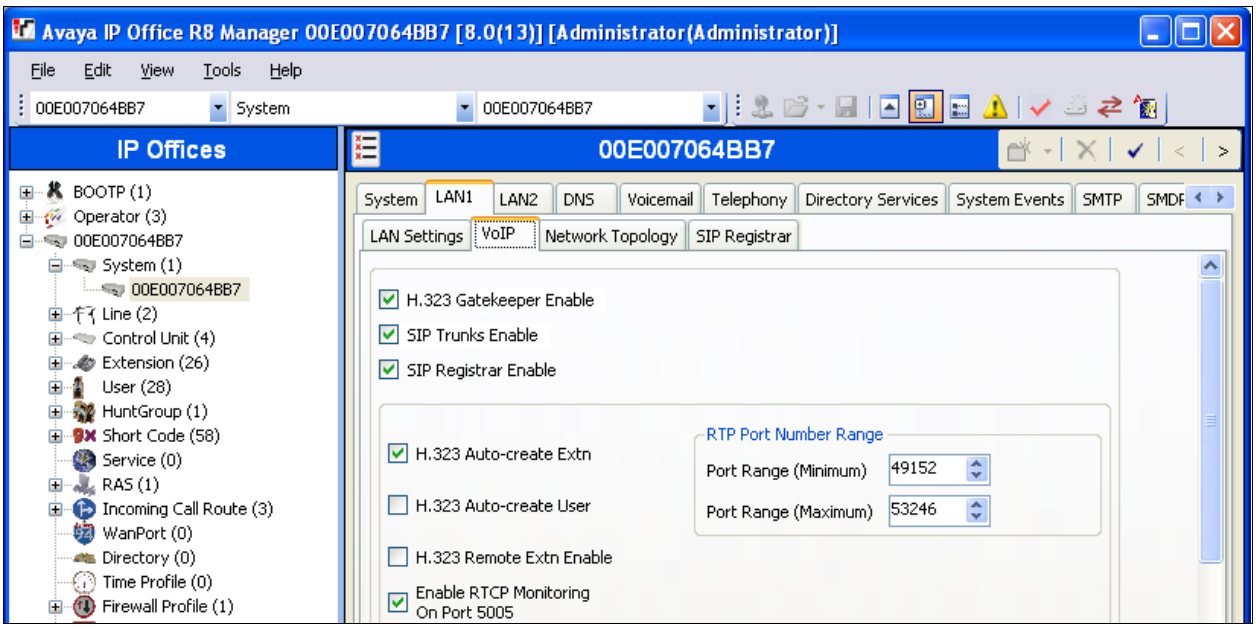
5.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the **System** screen for the IP Office 500 V2 in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the **IP Address**, which will be used later to configure FaxFinder IP. Note that IP Office can support SIP trunks on the LAN1 and/or LAN2 interfaces. The compliance testing used the LAN1 interface.


Avaya IP Office R8 Manager 00E007064BB7 [8.0(13)] [Administrator(Administrator)]
File Edit View Tools Help
00E007064BB7 System 00E007064BB7
IP Offices
BOOTP (1)
Operator (3)
00E007064BB7
System (1)
00E007064BB7
Line (2)
Control Unit (4)
Extension (26)
User (28)
HuntGroup (1)
Short Code (58)
00E007064BB7
System LAN1 LAN2 DNS Voicemail Telephony Directory Services System Events SMTP SMDF
LAN Settings VoIP Network Topology SIP Registrar
IP Address 192 . 168 . 100 . 30
IP Mask 255 . 255 . 255 . 0
Primary Trans. IP Address 192 . 168 . 100 . 1
RIP Mode None
Enable NAT

5.3. Enable SIP Trunks

Select the **VoIP** sub-tab. Ensure that **SIP Trunks Enable** is checked as shown below.



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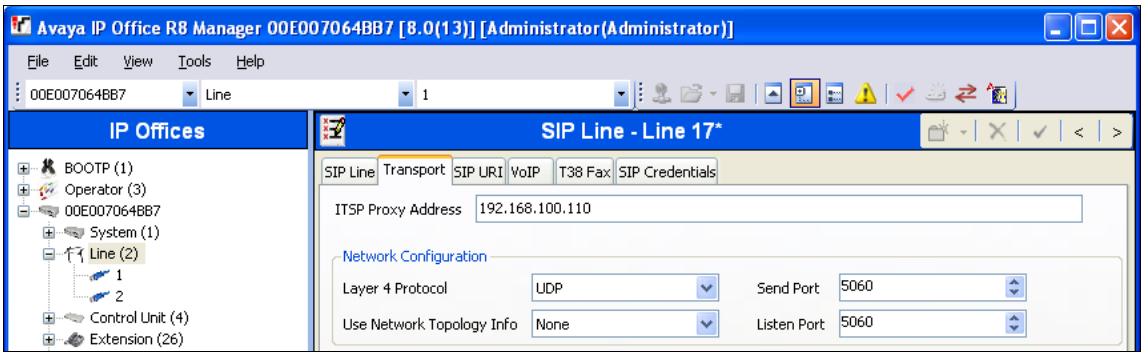
5.4. Administer SIP Line

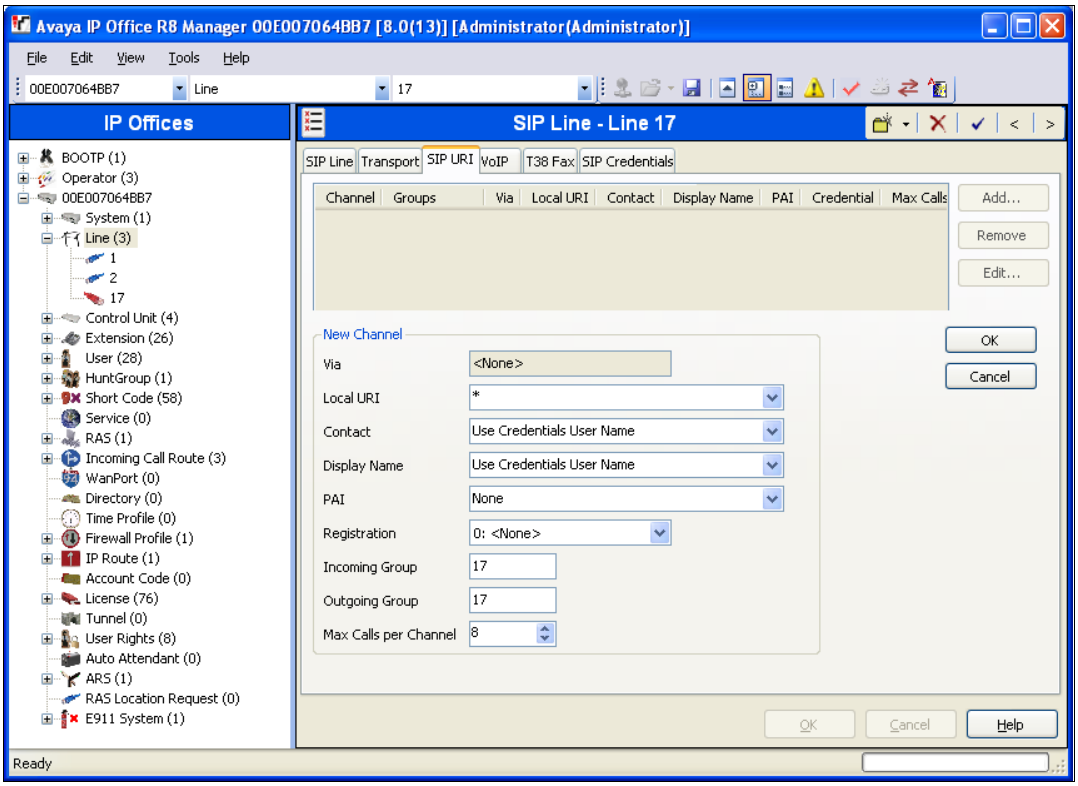
From the configuration tree in the left pane, right-click on **Line** and select **New → SIP Line** from the pop-up list to add a new SIP line.

Select the **Transport** tab in the right pane. For **ITSP Proxy Address**, enter the IP address of FaxFinder IP. Retain the default values for the remaining fields.



Select the **SIP URI** tab, and click **Add** to display the **New Channel** section.

Enter the wildcard character "*" for **Local URI**. Enter the SIP line number for **Incoming Group** and **Outgoing Group**. Set **Max Calls per Channel** to the desired maximum number of simultaneous faxes allowed by the FaxFinder IP license, in this case "8". Retain the default values in the remaining fields.



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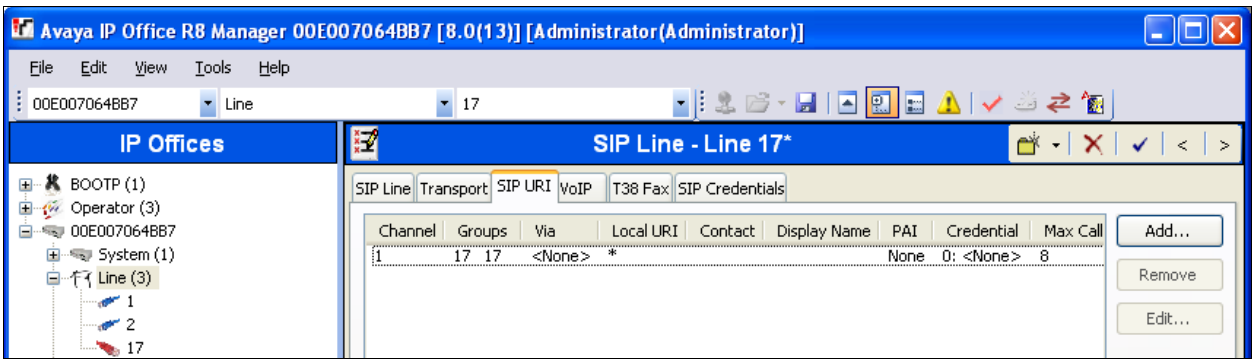
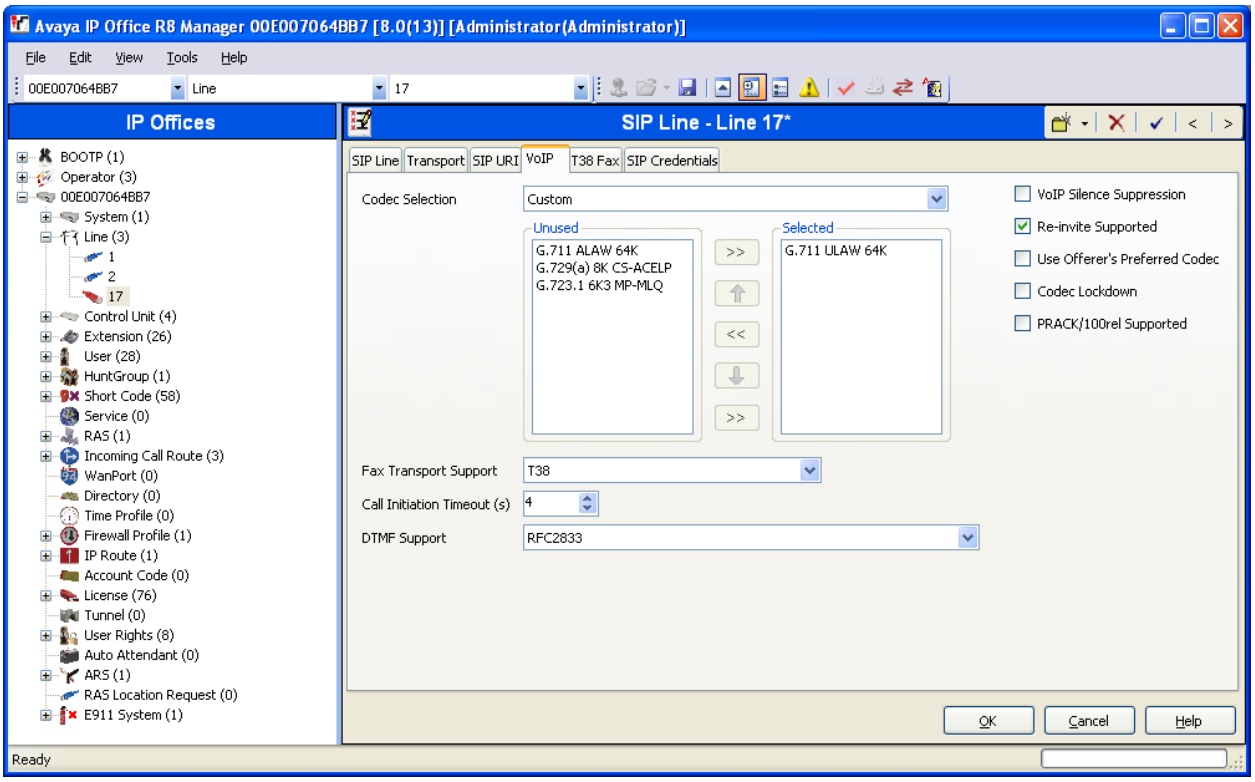
The screen is updated as shown below.



Select the **VoIP** tab. For **Codec Selection**, select "Custom" and select the applicable G.711 codec variant in the expanded list. Note that FaxFinder IP only supports the G.711 variants.

For **Fax Transport Support**, select "T38" from the drop-down list. Check **Re-invite Supported**, and retain the default values in the remaining fields.



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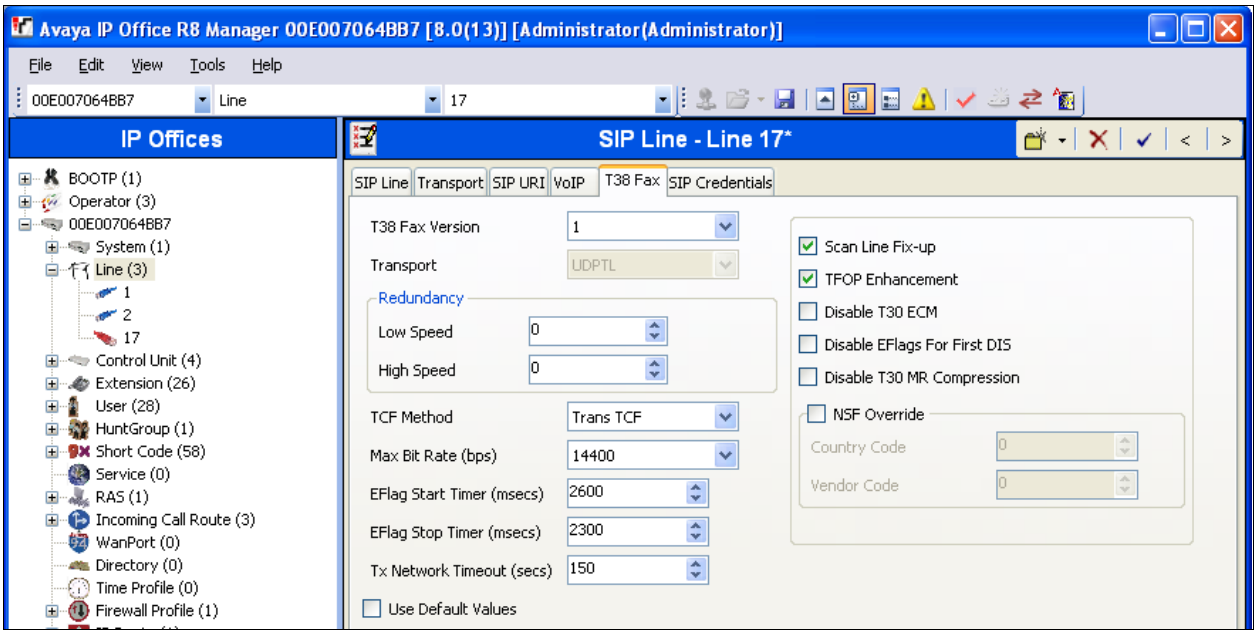
Select the **T38 Fax** tab. Uncheck **Use Default Values** toward the bottom of the screen to access all fields. For **T38 Fax Version**, select "1". Retain the default values for the remaining fields.

Note: The baud rate and modulation for fax transmissions may be set here by selecting the desired **Max Bit Rate (bps)**.



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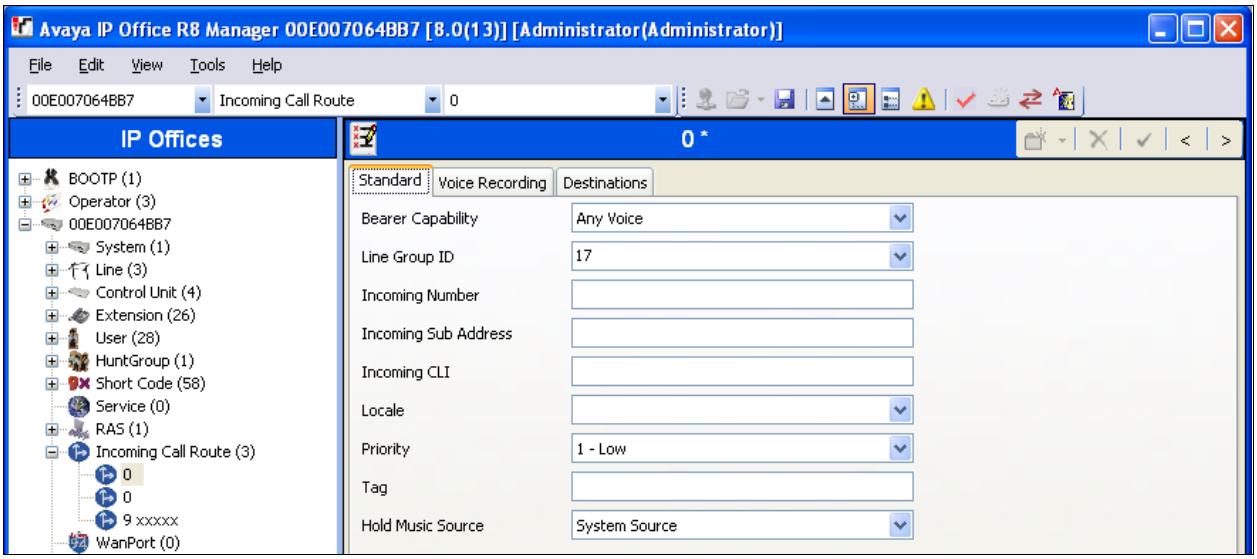
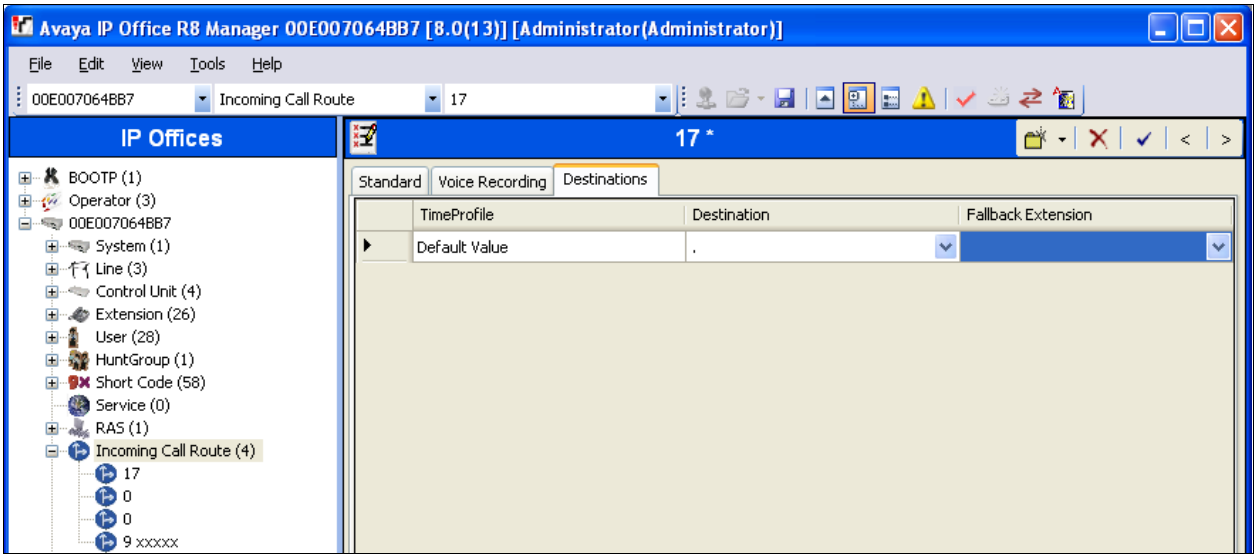
5.5. Administer Incoming Call Route

From the configuration tree in the left pane, right-click on **Incoming Call Route**, and select **New** from the pop-up list to add a new route. For **Line Group Id**, select the incoming group number from **Section 5.4**, which corresponds to the SIP line, in this case "17".



Select the **Destinations** tab. For **Destination**, enter "." to match any dialed number from FaxFinder IP.



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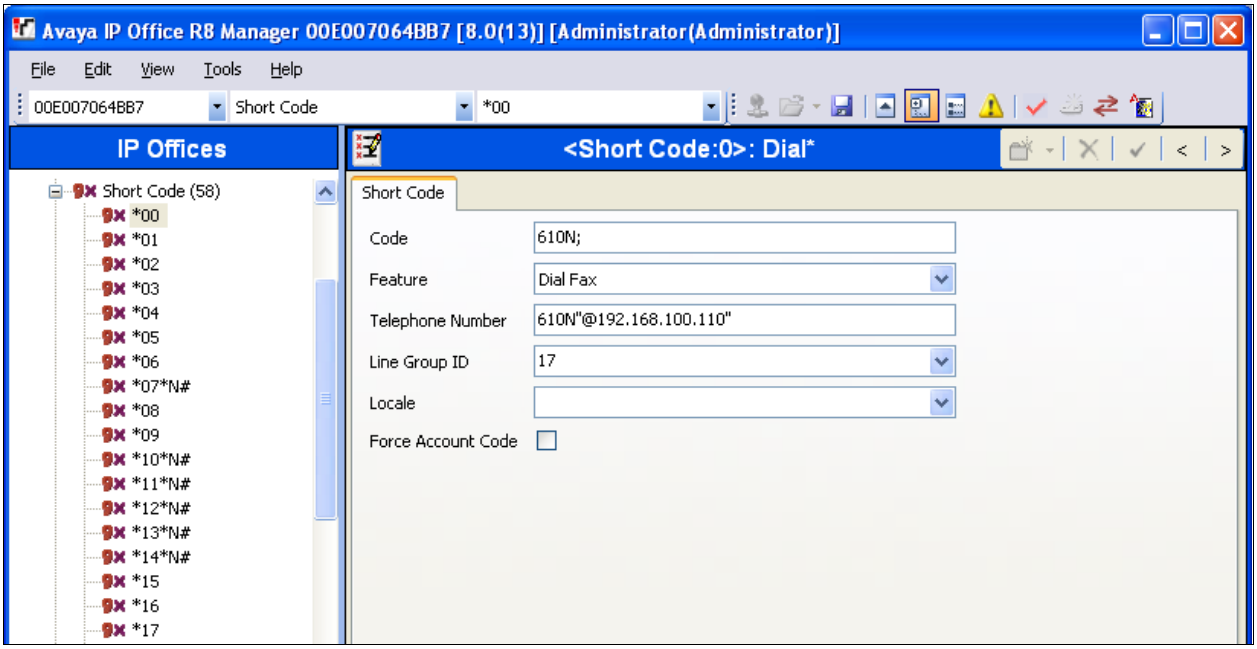
5.6. Administer Short Code

From the configuration tree in the left pane, right-click on **Short Code** and select **New** from the pop-up list to add a new short code for fax calls to FaxFinder IP. In the compliance testing, users on IP Office are designated with fax numbers 610xx, and the fax calls are routed over the SIP trunk to FaxFinder IP.

For **Code**, enter "610N;". For **Feature**, select "Dial Fax" from the drop-down list. For **Telephone Number**, enter the value shown below where "610N" is the short code and "192.168.100.110" is the IP address of FaxFinder IP. For **Line Group Id**, enter the outgoing group number from **Section 5.4**, which corresponds to the SIP line.



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6. Configure Multi-Tech FaxFinder IP

This section provides the procedures for configuring Multi-Tech FaxFinder IP. The procedures include the following areas:

- Launch FaxFinder Web Management
- Administer network
- Administer shares
- Administer SIP and T.38
- Administer inbound routing
- Administer users

6.1. Launch FaxFinder Web Management

Launch the FaxFinder Web Management interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is the IP address of FaxFinder IP. The **Login** screen below is displayed. Log in using the appropriate credentials.

The screen below is displayed next.

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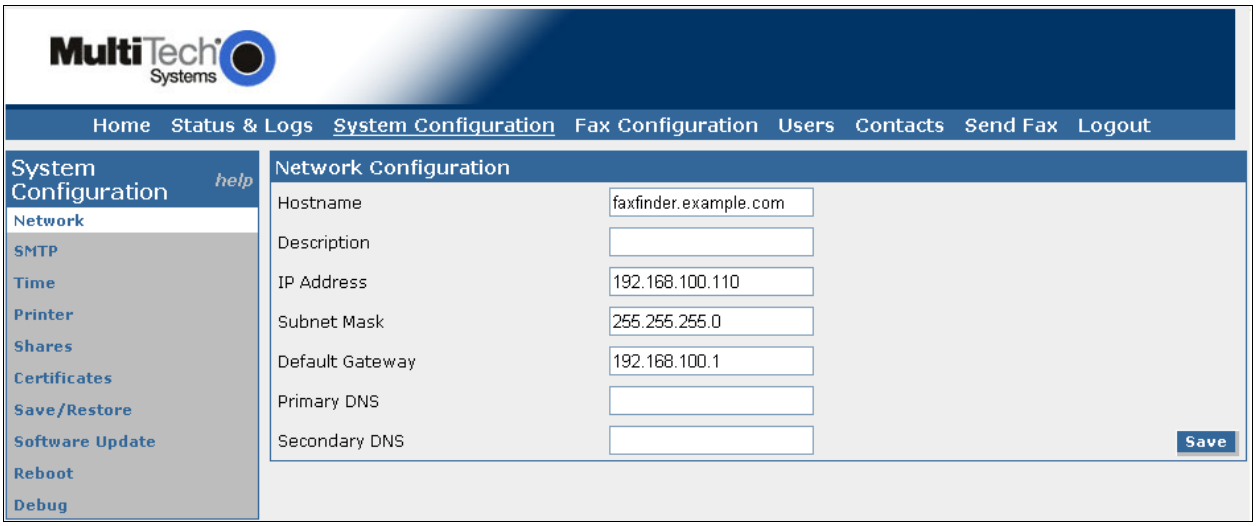
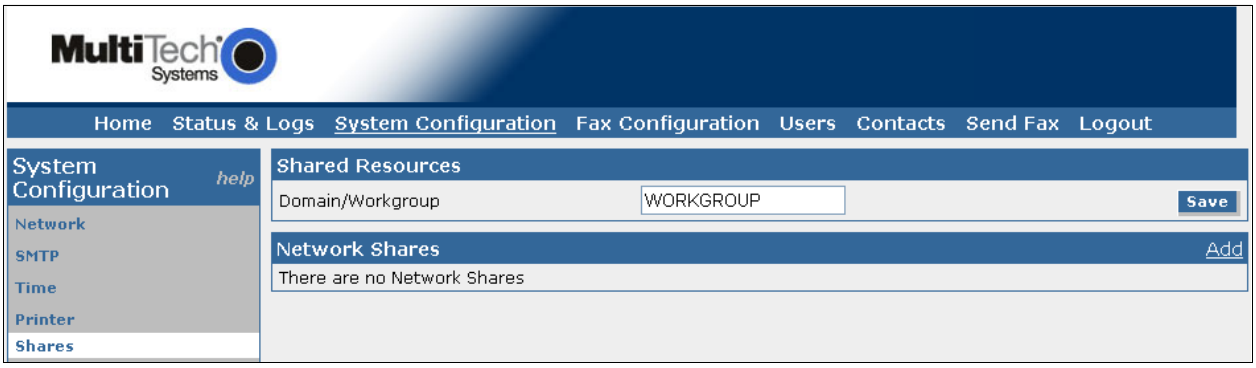
6.2. Administer Network

Select **System Configuration** from the top menu. The **Network Configuration** screen is displayed. Modify **Hostname, IP Address**, **Subnet Mask** and **Default Gateway** to the appropriate network values.



6.3. Administer Shares

Select **Shares** from the left pane. The screen below is displayed. Select **Add** to add a network share. Note that the configuration in this section is only necessary for the shared folder method of storing incoming faxes.



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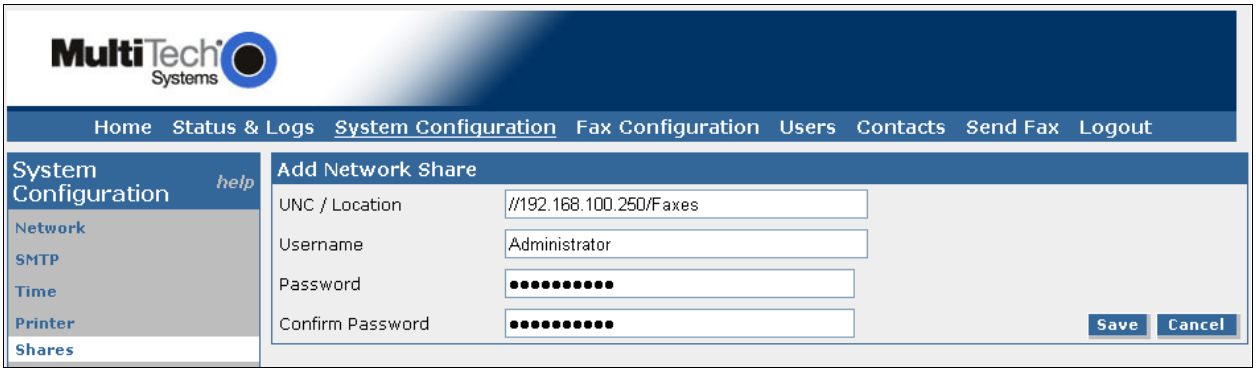
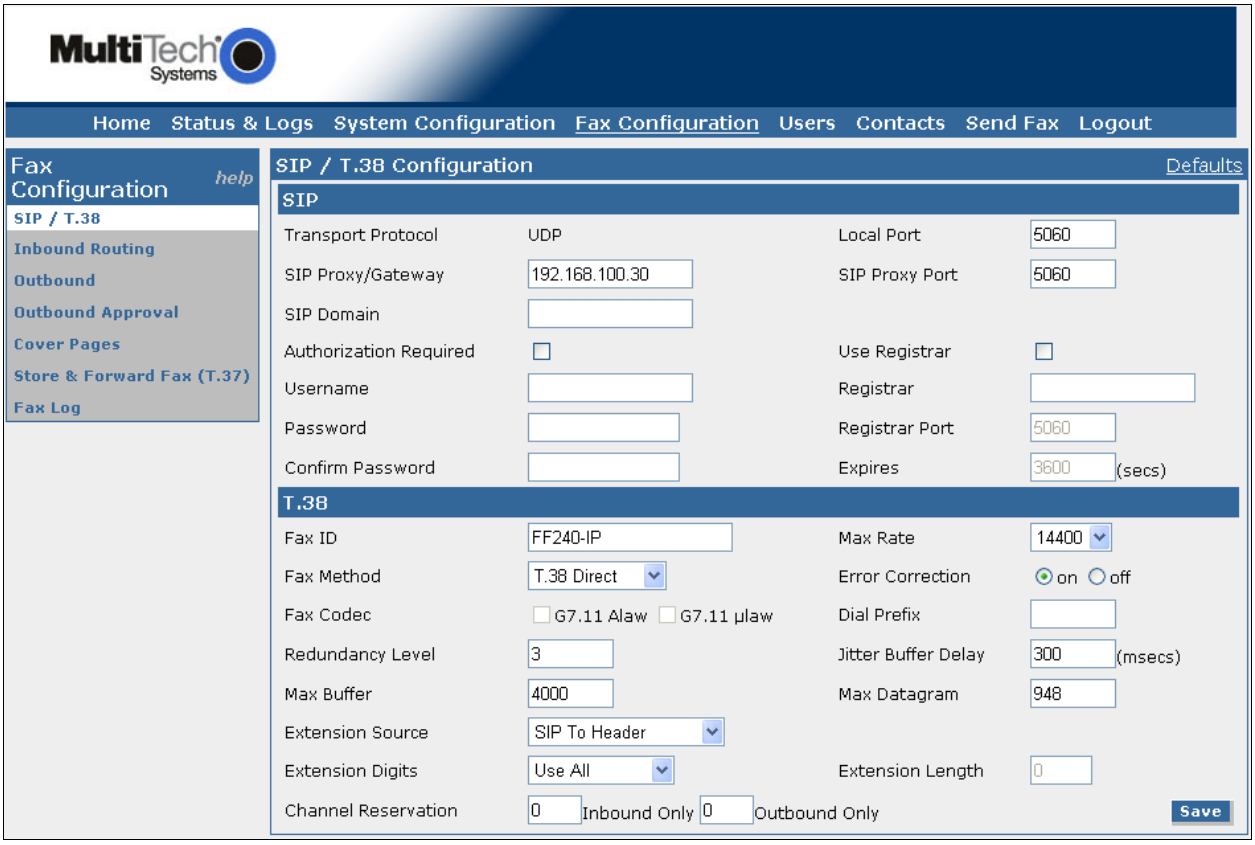
The **Add Network Share** screen is displayed. For **UNC / Location**, enter the path to the shared location. Enter appropriate credentials for **Username**, **Password** and **Confirm Password**. Note that this location must allow network sharing so that other users can write to it.



6.4. Administer SIP and T.38

Select **Fax Configuration** from the top menu. The **SIP / T.38 Configuration** screen is displayed. In the **SIP** section, enter the IP address of IP Office in **SIP Proxy/Gateway**. Retain the default values in the remaining fields. In the **T.38** section, select "T.38 Direct" for **Fax Method**. Retain the default values in the remaining fields.



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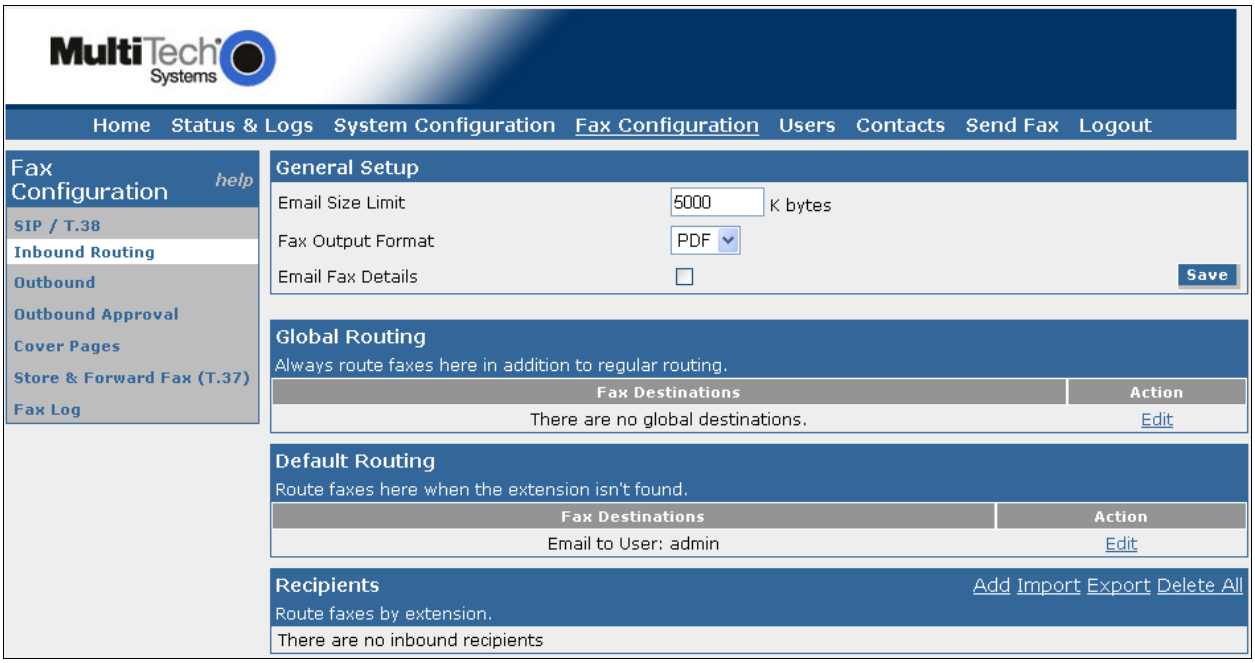
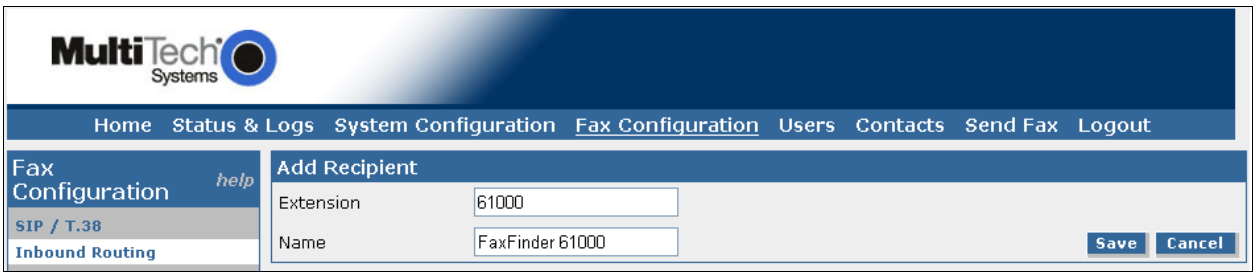
6.5. Administer Inbound Routing

Select **Inbound Routing** from the left pane. The screen below is displayed. In the **Recipients** section, select **Add** to add a new recipient.



The **Add Recipient** screen is displayed next. For **Extension**, enter the first fax extension. Enter a descriptive **Name**.



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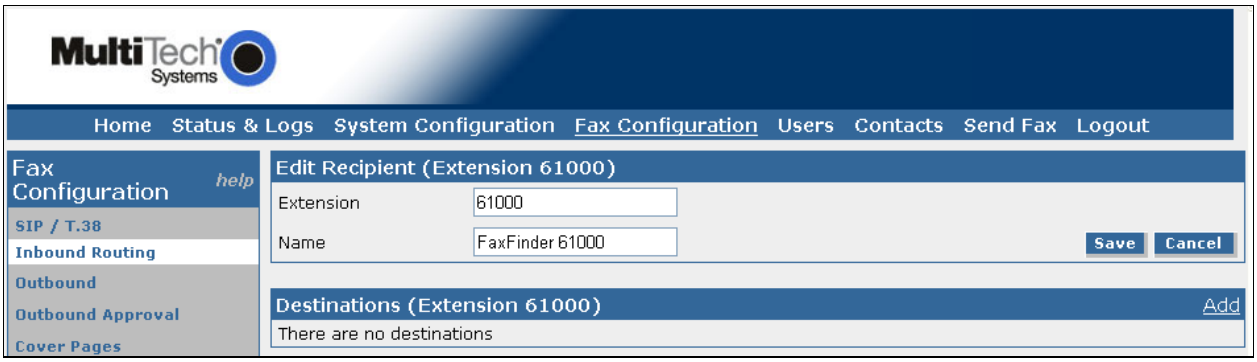
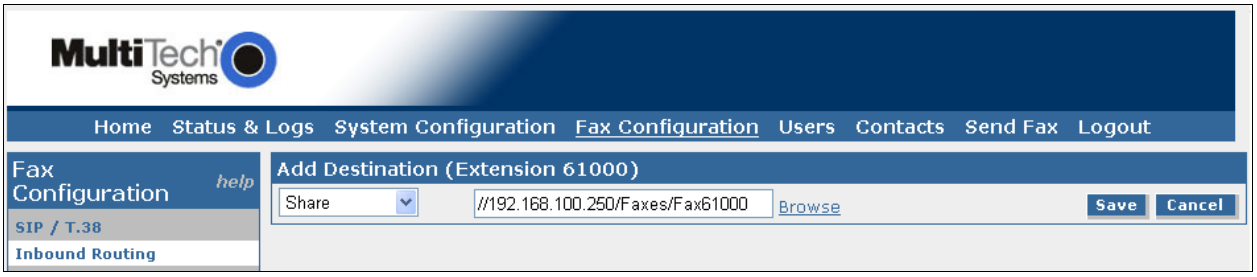
The screen is updated as shown below. Click **Add** to add a destination for incoming faxes.



The **Add Destination** screen is displayed. The default setting is to send incoming faxes to the recipient's email. In the compliance testing, the destination was configured to use the shared folder method to store incoming faxes. Select "Share" from the drop-down box, and enter the path to a shared folder in the next field. Repeat this section to add an inbound routing recipient for each fax user.



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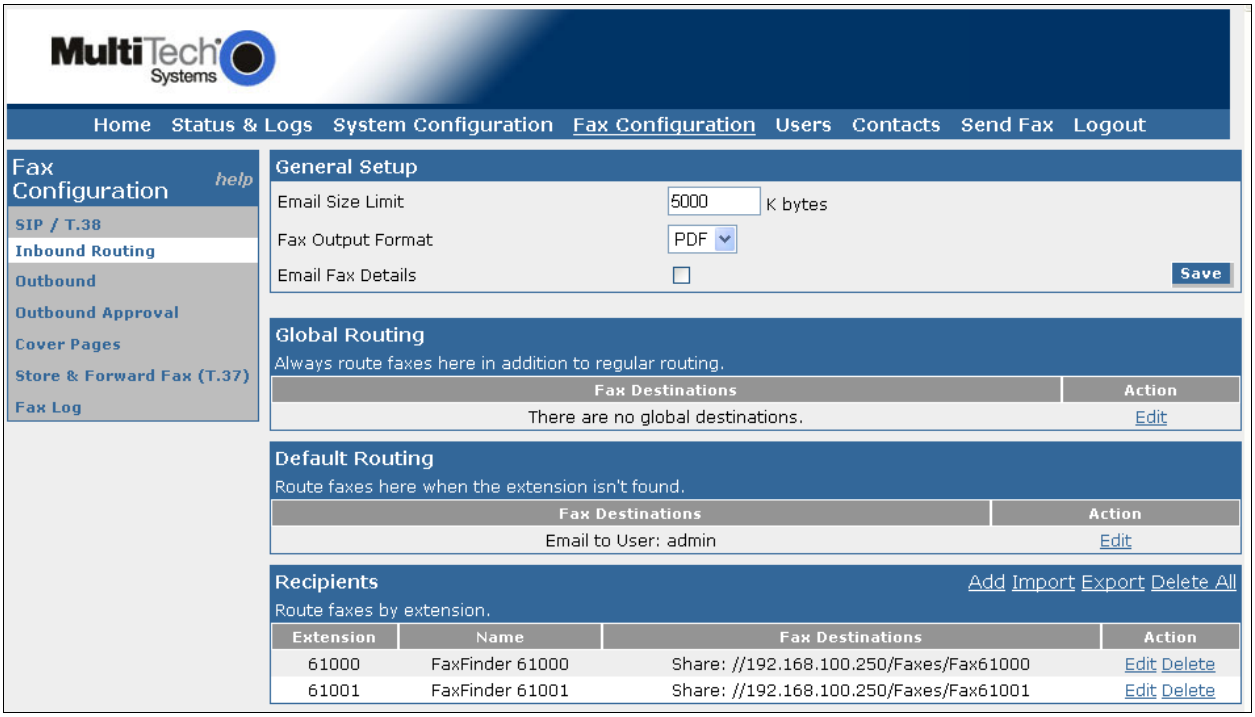
In the compliance testing, two inbound routing recipients were created to correspond to the two fax users as shown below.



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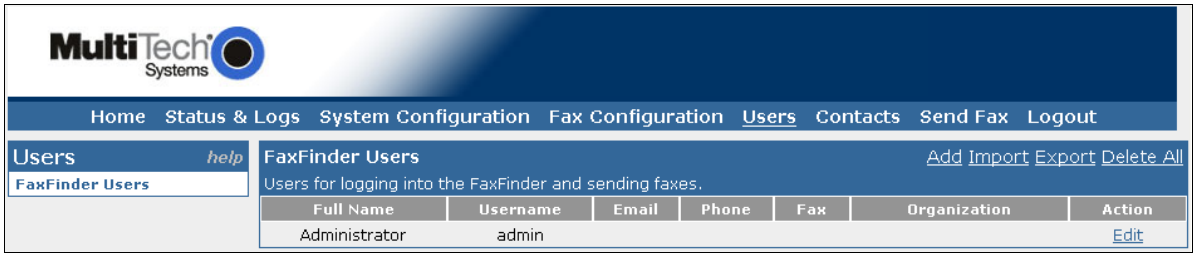
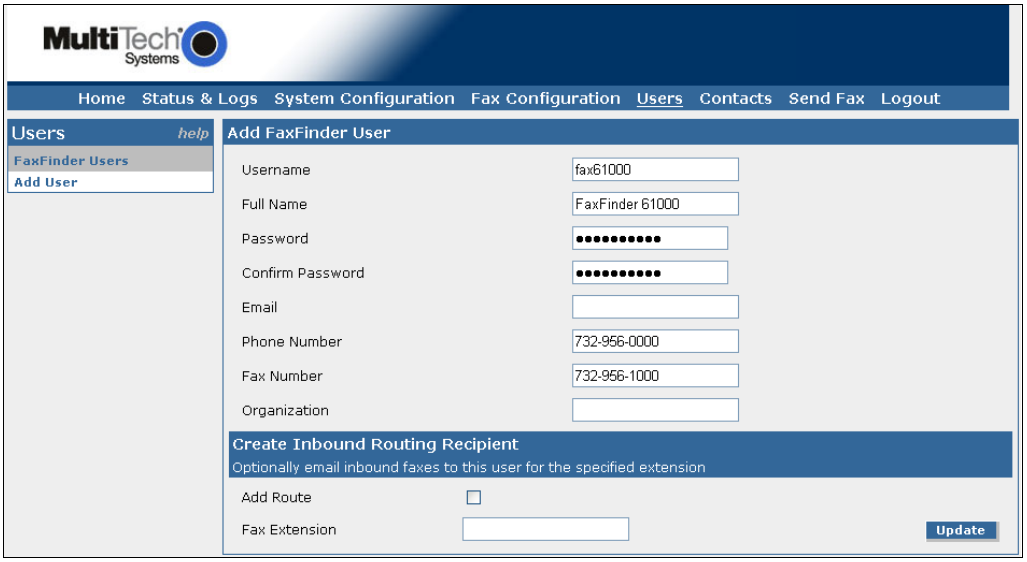
6.6. Administer Users

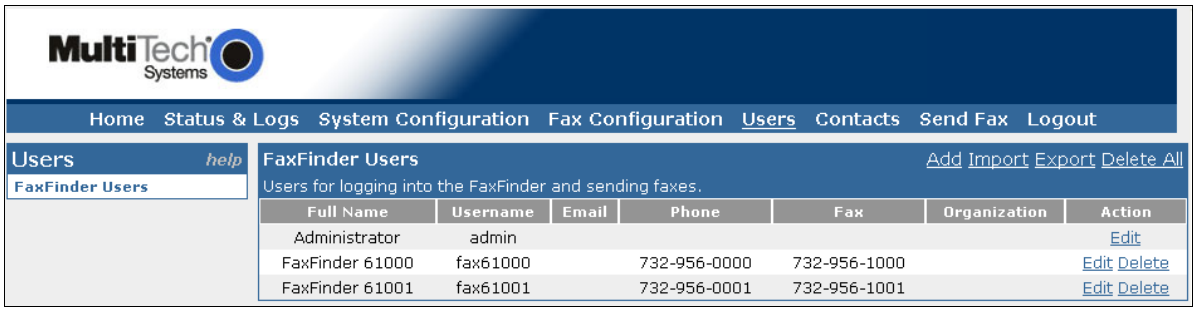
Select **Users** from the top menu to display the **FaxFinder Users** screen. Click **Add** to add a new user.


MultiTech Systems
Home Status & Logs System Configuration Fax Configuration Users Contacts Send Fax Logout
Users help
FaxFinder Users
FaxFinder Users
Add Import Export Delete All
Users for logging into the FaxFinder and sending faxes.
Full Name Username Email Phone Fax Organization Action
Administrator admin Edit

The **Add FaxFinder User** screen is displayed next. Enter descriptive values for **Username** and **Full Name**. Enter a desired value for **Password** and **Confirm Password**. Enter the full telephone and fax numbers for the user in the **Phone Number** and **Fax Number** fields, respectively.



Repeat this section to create all desired users. In the compliance testing, two fax users were created as shown below.


MultiTech Systems
Home Status & Logs System Configuration Fax Configuration Users Contacts Send Fax Logout
Users help
FaxFinder Users
FaxFinder Users
Add Import Export Delete All
Users for logging into the FaxFinder and sending faxes.
Full Name Username Email Phone Fax Organization Action
Administrator admin Edit
FaxFinder 61000 fax61000 732-956-0000 732-956-1000 Edit Delete
FaxFinder 61001 fax61001 732-956-0001 732-956-1001 Edit Delete

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7. Verification Steps

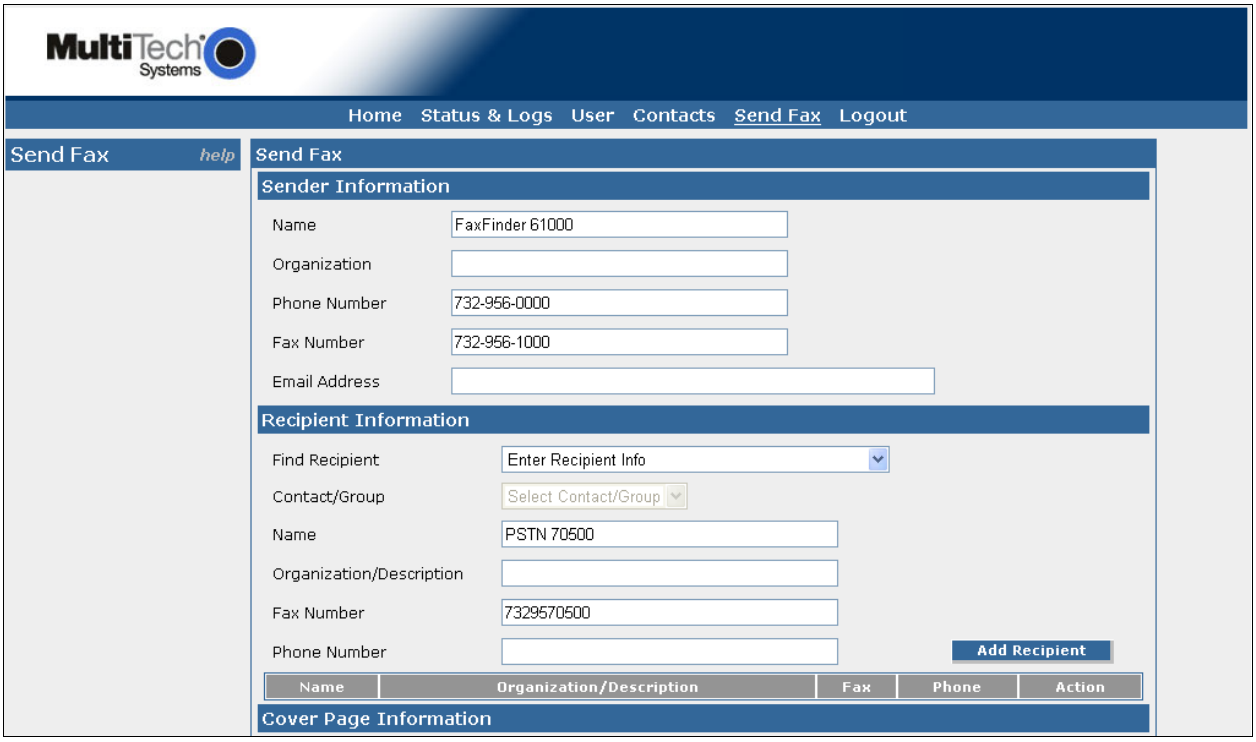
This section provides the tests that can be performed to verify proper configuration of Multi-Tech FaxFinder IP and Avaya IP Office.

7.1. Verify Multi-Tech FaxFinder IP

Follow the procedures in **Section 6.1** to launch the FaxFinder Web Management interface, and log in using a fax user's credentials from **Section 6.6**. Select **Send Fax** from the top menu to display the **Send Fax** screen.

The **Sender Information** section is populated automatically.

In the **Recipient Information** section, enter the appropriate **Name** and **Fax Number** for the fax recipient as shown below. Retain the default values in the remaining fields.



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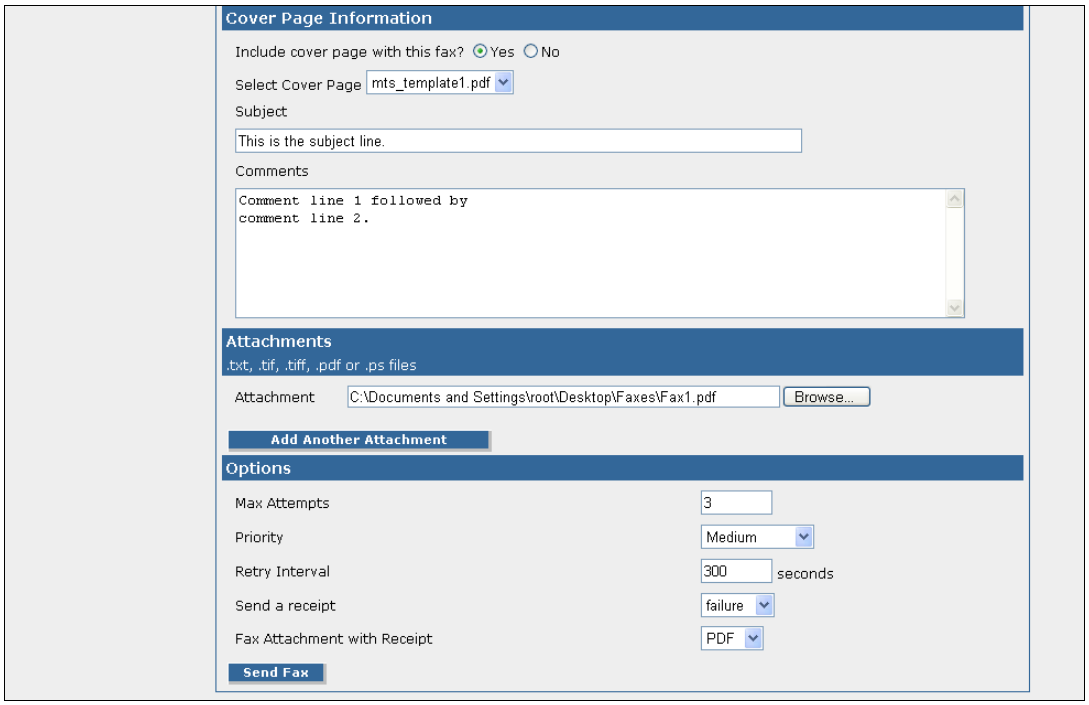
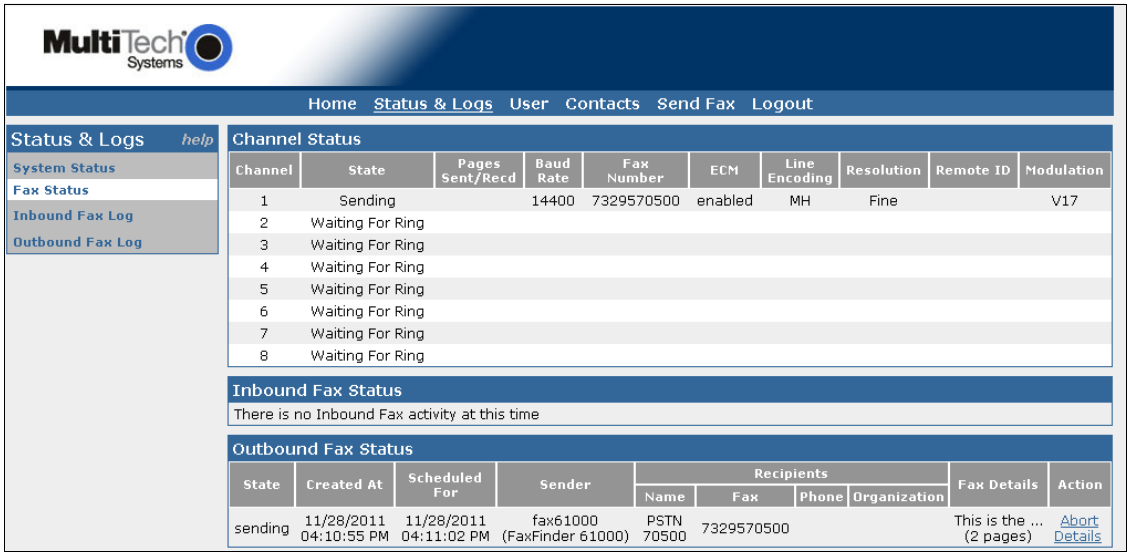
Scroll down the screen to the **Cover Page Information** section. Modify this section as desired. In the **Attachments** section, click **Browse** to select any desired attachment. In the **Options** section, make any desired changes and click **Send Fax**.



Select **Status & Logs** from the top menu, followed by **Fax Status** in the left pane, to display the screen below. In the **Channel Status** section, verify that there is a channel with a **State** of "Sending". In the **Outbound Fax Status** section, verify that there is an entry showing the active fax with a **State** of "sending", and that the **Sender** and **Recipient** fields display proper information.


MultiTech Systems
Home Status & Logs User Contacts Send Fax Logout
Status & Logs help
System Status
Fax Status
Inbound Fax Log
Outbound Fax Log
Channel Status
Channel State Pages Sent/Recd Baud Rate Fax Number ECM Line Encoding Resolution Remote ID Modulation
1 Sending 14400 7329570500 enabled MH Fine V17
2 Waiting For Ring
3 Waiting For Ring
4 Waiting For Ring
5 Waiting For Ring
6 Waiting For Ring
7 Waiting For Ring
8 Waiting For Ring
Inbound Fax Status
There is no Inbound Fax activity at this time
Outbound Fax Status
State Created At Scheduled For Sender Recipients Fax Details Action
Name Fax Phone Organization
sending 11/28/2011 04:10:55 PM 11/28/2011 04:11:02 PM fax61000 (FaxFinder 61000) PSTN 70500 7329570500 This is the ... (2 pages) Abort Details

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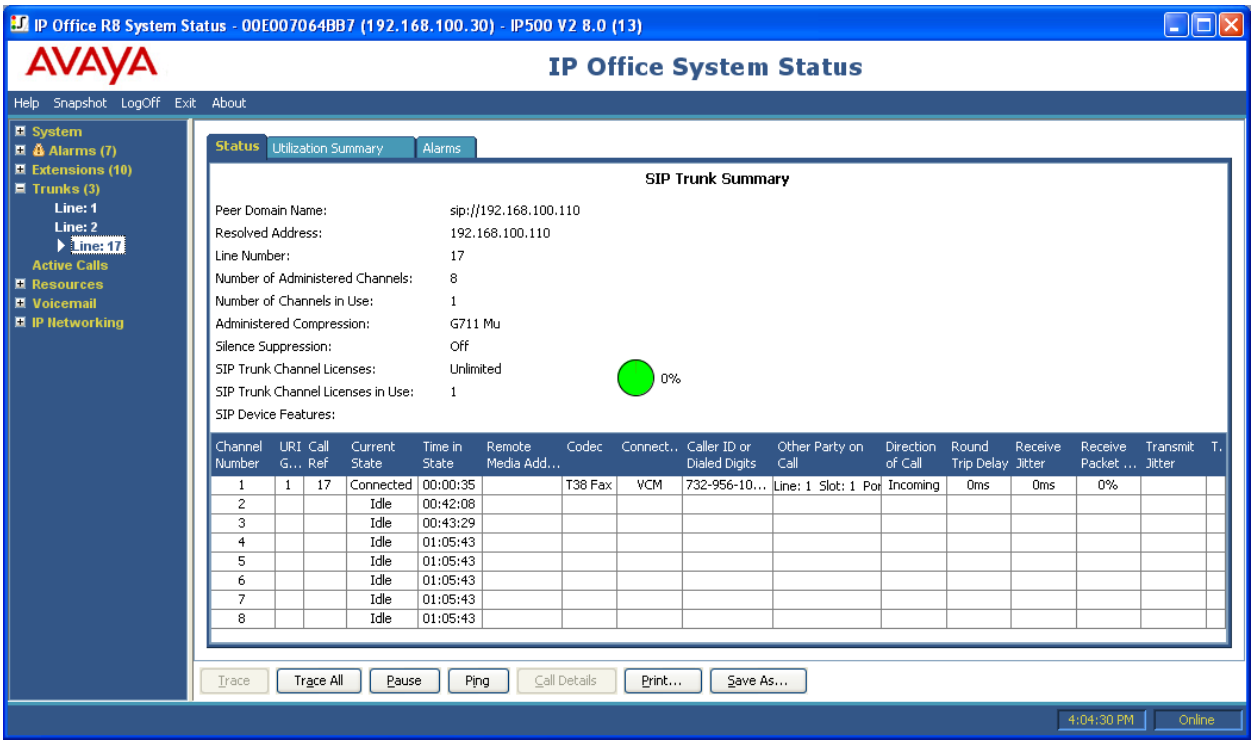
7.2. Verify Avaya IP Office

From the **Avaya IP Office R8 Manager** screen shown in **Section 5.1**, select **File → Advanced → System Status** to launch the System Status application, and log in using the appropriate credentials.

The **IP Office System Status** screen is displayed. Expand **Trunks** in the left pane and select the SIP line from **Section 5.4**, in this case "17".

Verify that the **SIP Trunk Summary** screen shows an active channel with a **Current State** of "Connected", and that the sender fax number from **Section 7.1** is displayed in the **Caller ID or Dialed Digits** field. Also verify that the **Other Party on Call** contains the proper information for the trunk to the PSTN, as shown below. In the compliance testing, line "1" is the PRI trunk to the PSTN.


IP Office R8 System Status - 00E007064BB7 (192.168.100.30) - IP500 V2 8.0 (13)
AVAYA
IP Office System Status
Help Snapshot LogOff Exit About
System
Alarms (7)
Extensions (10)
Trunks (3)
Line: 1
Line: 2
Line: 17
Active Calls
Resources
Voicemail
IP Networking
Status
Utilization Summary
Alarms
SIP Trunk Summary
Peer Domain Name: sip://192.168.100.110
Resolved Address: 192.168.100.110
Line Number: 17
Number of Administered Channels: 8
Number of Channels in Use: 1
Administered Compression: G711 Mu
Silence Suppression: Off
SIP Trunk Channel Licenses: Unlimited
SIP Trunk Channel Licenses in Use: 1
SIP Device Features:
0%
Channel Number | URI G... | Call Ref | Current State | Time in State | Remote Media Add... | Codec | Connect.. | Caller ID or Dialed Digits | Other Party on Call | Direction of Call | Round Trip Delay | Receive Jitter | Receive Packet ... | Transmit Jitter | T.
1 | 1 | 17 | Connected | 00:00:35 | | T38 Fax | VCM | 732-956-10... | Line: 1 Slot: 1 Por | Incoming | 0ms | 0ms | 0%
2 | Idle | 00:42:08
3 | Idle | 00:43:29
4 | Idle | 01:05:43
5 | Idle | 01:05:43
6 | Idle | 01:05:43
7 | Idle | 01:05:43
8 | Idle | 01:05:43
Trace
Trace All
Pause
Ping
Call Details
Print...
Save As...
4:04:30 PM
Online

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8. Conclusion

These Application Notes describe the configuration steps required to integrate the Multi-Tech FaxFinder IP with Avaya IP Office using SIP. All feature and serviceability test cases were completed and passed.

9. Additional References

This section references the product documentation relevant to these Application Notes.

1. *IP Office 7.0 Documentation CD*, March 2011, available at http://support.avaya.com.

2. *FaxFinder IP Administrator User Guide*, available at https://support.multitech.com.

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